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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/885,471      | 06/20/2001  | Sang-Wook Cheong     | 5-1                 | 3875             |

7590 10/03/2002

Docket Administrator (Room 3J-219)  
Lucent Technologies Inc.  
101 Crawfords Corner Road  
Holmdel, NY 07733

EXAMINER

FULLER, ERIC B

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1762

DATE MAILED: 10/03/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/885,471

Applicant(s)

CHEONG ET AL.

Examiner

Eric B Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-15 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-7, drawn to a product, classified in class 428, subclass 195.
- II. Claims 8-15, drawn to a process, classified in class 427, subclass 596.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product can be made by another process, such as lamination of the  $\text{MgB}_2$  to the substrate.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with John McCabe on July 17, 2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 8-15. Affirmation of this election must be made by applicant in replying to this

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Office action. Claims 1-7 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 8-15 are rejected under 35 U.S.C. 102(a) as being anticipated by Eom et al. (Letters to Nature article from applicant's IDS).

Eom teaches a process where pulsed laser deposition is used in order to deposit  $\text{MgB}_2$  onto strontium titanium oxide substrates (column 1, 2<sup>nd</sup> paragraph). The target is a solid mass of  $\text{MgB}_2$  that has been pressed and sintered. The thickness of the films is 500 nm. The pressure is within the applicant's claimed ranges. Although the limitation of the substrate and  $\text{MgB}_2$  having lattice constants along the surface that match to at

least 10% (claim 9) is not explicitly taught by the reference, it is the position of the examiner that this would be inherent, since all the other parameters taught by Eom are the same as the applicant's.

Claims 8, 9, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Satou et al. (US 4,657,774).

Satou teaches a process of evaporating a solid and depositing a film of that solid onto a ceramic substrate (column 3, lines 13-30; column 6, lines 15-20). The evaporation means may be a laser (column 5, lines 20-25). The target may be metallic borides of magnesium (column 5, lines 64-68). The pressures disclosed fall within the applicant's claimed ranges (column 4, line 40). It is the position of the examiner that the limitation of claim 9 is inherent to the process of Satou as the reference teaches all other parameters claimed by the applicant.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satou et al. (US 4,657,774) as applied to claim 8 above, and further in view of the applicant's admitted prior art and Watanabe et al. (US 4,704,372).

Satou teaches the limitations to claim 8, as shown above, and teaches that the target is a solid mass (column 5, lines 35-60), but fails to teach sintering the target prior to irradiation. However, the applicant has admitted, on page 2 of the specification, that  $MgB_2$  is typically a powder. Watanabe teaches that sintering  $MgB_2$  powder will cause the powder to form a solid mass. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to sinter the powdered  $MgB_2$  such that it is converted into a solid mass.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satou et al. (US 4,657,774) as applied to claim 8 above, and further in view of Rosen et al. (US 5,820,627).

Satou teaches the limitations of claim 8, as shown above, but fails to teach using a pulsed laser. However, Rosen teaches that pulsed lasers provide more precision and control than continuous lasers (column 1, lines 20-25). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize a pulsed laser in the process taught by Satou. By doing so, more precision and control is achieved.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satou et al. (US 4,657,774) as applied to claim 8 above, and further in view of Morimoto et al. (US 4,622,236).

Satou teaches the limitations of claim 8, as shown above, but fails to teach that the substrate is made of the materials claimed by the applicant. However, Morimoto teaches that for thin films that are the same as those taught by Sataou, silica is commonly used as the substrate because it is relatively inexpensive. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize silica as the substrate in Sataou. By doing so, a relatively inexpensive substrate is used. Silmilar results are expected as Satou specifically teaches that the substrate may be "any material such as ceramic...".

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satou et al. (US 4,657,774).

Satou teaches the limitations to claim 13, but fails to explicitly teach the thickness of the film. However, it is the examiner's position that to use a minimum thickness that still allows for the film to be effective would have been obvious at the time the invention was made to a person having ordinary skill in the art.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kang et al. (US 2002/0132739) is cited as pertinent to the applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (703) 308-6544. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached at (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



EBF  
October 1, 2002



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